## CLAIMS

## What is claimed is:

- 1 1. A network management system for discovering information about a network,
- 2 comprising:
- 3 plural discovery agents adapted to discover information concerning said network;
- 4 each of said discovery agents having an associated discovery capability;
- 5 each of said discovery agents having an associated discovery assignment; and
- 6 collectively, said agent discovery assignments being a subset of said agent discovery
- 7 capabilities.
- 1 2. A system in accordance with Claim 1 wherein, collectively, said agent discovery
- 2 capabilities are overlapping and said agent discovery assignments are substantially non-
- 3 overlapping.
- 1 3. A system in accordance with Claim 1 wherein said agent discovery assignments are
- 2 based on said discovery capabilities.
- 1 4. A system in accordance with Claim 1 wherein said agent discovery assignments
- 2 reflect one or more of data collection service registrations with said agents, agent cost to
- 3 obtain network information, load balancing among said agents, and assignment churn.

- 1 5. A system in accordance with Claim 1 wherein said agent discovery assignments
- 2 comprise one or both of inband and outband discovery assignments.
- 1 6. A network management system for discovering information about a network,
- 2 comprising:
- a network manager;
- 4 plural discovery agents connected to said network manager;
- 5 each of said discovery agents having an associated discovery capability to obtain
- 6 information concerning said network;
- 7 capability determining means for determining said agent discovery capabilities;
- 8 assignment computation means for computing agent discovery assignments for one or
- 9 more of said discovery agents based on said agent discovery capabilities; and
- assignment implementing means for implementing said agent discovery assignments
- at one or more of said discovery agents.
- 7. A system in accordance with Claim 6 wherein said network manager is not part of said
- 2 network.
- 8. A system in accordance with Claim 6 wherein one or more of said agents are
- 2 associated with nodes in said network.
- 9. A system in accordance with Claim 6 wherein said capability determining means
- 2 comprises first means in said network manager for requesting a capability poll, second means

- 3 in said agents for performing a capability query, and third means in said agents for providing
- 4 a capability poll response to said network manager.
- 1 10. A system in accordance with Claim 10 wherein said assignment computation means is
- 2 adapted to generate said agent assignments based on one or more of data collection service
- 3 registrations between said network manager and said agents, agent cost to obtain network
- 4 information, load balancing among said agents, and assignment churn.
- 1 11. In association with a data storage network having a plurality of managed hosts, a
- 2 plurality of storage devices, and a plurality of switching fabric nodes providing inband
- 3 interconnections between said managed hosts and said storage devices, a data storage network
- 4 management system for discovering information about said data storage network, comprising:
- 5 a network manager connected to said managed hosts via outband connections;
- 6 plural inband discovery agents operating on said managed hosts;
- 7 plural outband discovery agents operating on said network manager;
- 8 each of said discovery agents having an associated discovery capability to obtain
- 9 information concerning said data storage network;
- agent capability determining logic in said discovery agents adapted to generate agent
- capability information sets identifying said agent discovery capabilities, said agent capability
- information sets being subsets of full agent discovery information sets obtainable by said
- 13 agents;

- assignment computation logic in said network manager adapted to compute agent
- discovery assignments for one or more of said discovery agents based on said agent discovery
- 16 capability information sets; and
- assignment implementing logic in said one or more discovery agents for implementing
- said agent discovery assignments.
- 1 12. A method for obtaining intelligent discovery of network information in a network
- 2 using a plurality of network discovery agents having mutually nonexclusive discovery
- 3 capabilities, comprising:
- 4 determining said agent discovery capabilities;
- 5 computing agent assignments based on said agent discovery capabilities and a goal of
- 6 limiting network discovery poll overhead; and
- 7 implementing said agent assignments.
- 1 13. A method in accordance with Claim 12 wherein said agent discovery capabilities are
- 2 determined by performing capability polls representing subsets of full network discovery
- 3 polls.
- 1 14. A method in accordance with Claim 12 wherein said agent assignments are computed
- 2 based on consideration of one or more of data collection service registrations between said
- 3 network manager and said agents, agent cost to obtain network information, load balancing
- 4 among said agents, and assignment churn.

- 1 15. A method in accordance with Claim 12 wherein said agent assignments are
- 2 implemented by limiting the scope of agent discovery to a subset of said discovery
- 3 capabilities.
- 1 16. A network manager for managing a data storage network, comprising:
- agent discovery capability determining logic adapted to determine discovery
- 3 capabilities of discovery agents in said data storage network;
- 4 assignment computation logic adapted to compute agent discovery assignments based
- 5 on said agent discovery capabilities;
- discovery poll request logic adapted to request network discovery from said agents
- 7 according to said agent discovery assignments; and
- discovery poll response logic adapted to process network discovery received from said
- 9 agents in response to said network discovery requests.
- 1 17. A network discovery agent for use in a data storage network, comprising:
- 2 discovery capability logic adapted to determine and provide agent discovery capability
- 3 information to a requestor, said agent discovery capability information being a subset of all
- 4 discovery information obtainable by said agent; and
- discovery query logic adapted to implement discovery queries based on agent
- 6 discovery assignment information determined from said capability information.
- 1 18. A computer program product for obtaining discovery of network information from
- 2 plural information gathering agents, comprising:

- one or more data storage media;
- 4 means recorded on said data storage media for programming a data processing
- 5 platform to operate as a network manager to perform intelligent network discovery in a data
- 6 storage network by:
- 7 determining discovery capabilities of said agents;
- 8 computing agent assignments based on said agent discovery capabilities;
- 9 requesting one or more of said agents to perform network discovery according to said
- 10 agent assignments; and
- processing discovery information returned by said one or more agents.
- 1 19. A computer program product in accordance with Claim 18 wherein said agent
- discovery assignments are based on one or more of data collection service registrations
- 3 between said network manager and said agents, agent cost to obtain network information, load
- 4 balancing among said agents, and assignment churn.
- 1 20. A computer program product for obtaining discovery of network information from
- 2 plural information gathering agents, comprising:
- one or more data storage media;
- 4 means recorded on said data storage media for programming a managed host in a data
- 5 storage network to operate as an inband discovery agent or a network manager to operate as
- 6 an outband discovery agent that performs intelligent network discovery in conjunction with
- 7 other agents by:
- 8 providing agent discovery capability information to a requester;

- 9 receiving agent discovery assignments from said requester that are based on said
- 10 discovery capability information;
- performing intelligent discovery according to said agent discovery assignments; and
- providing intelligent discovery information received in response to said intelligent
- 13 discovery to said requester.